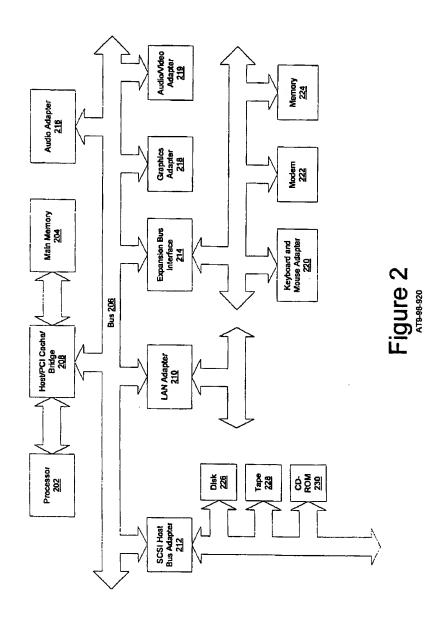
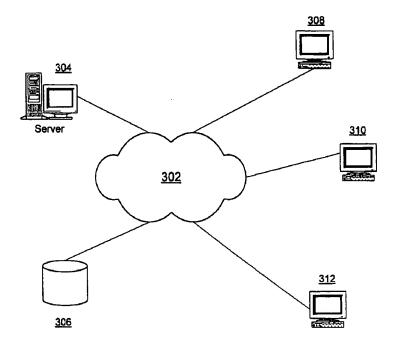


Figure 1

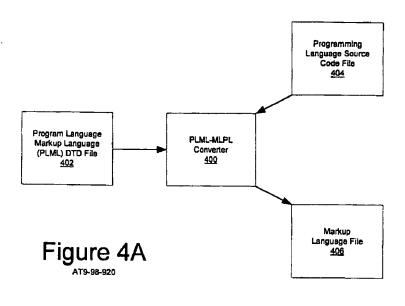


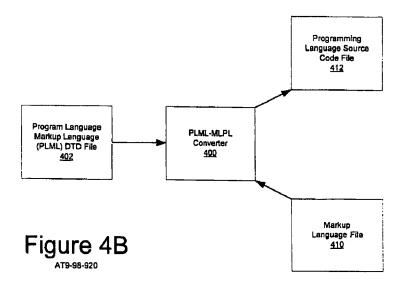






300 Network Figure 3





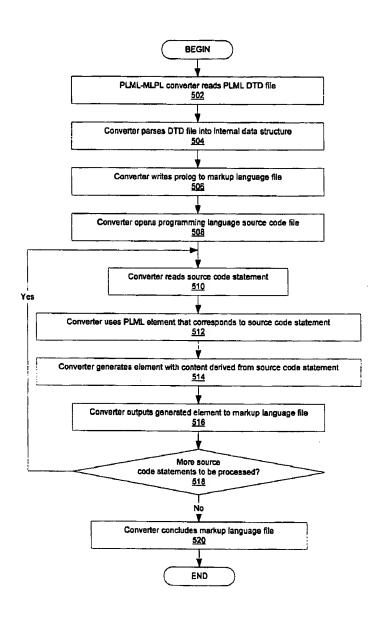


Figure 5

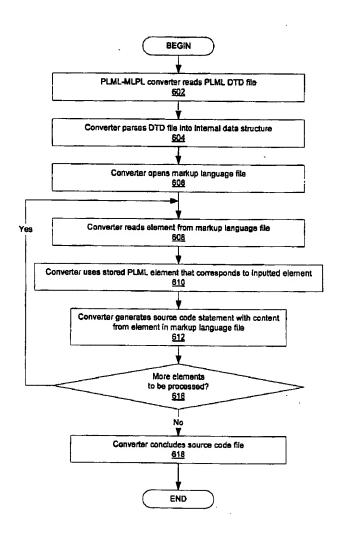


Figure 6

## Figure 7

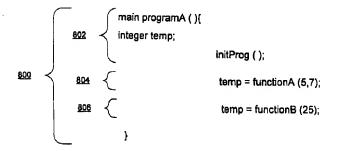
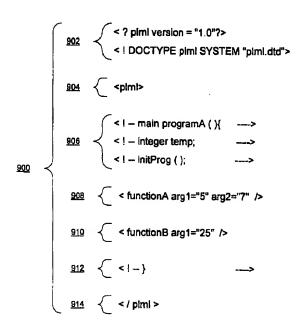
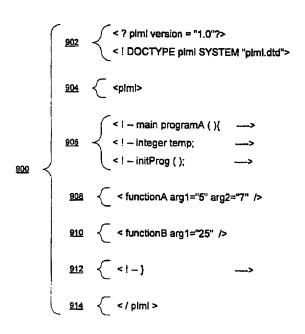


Figure 8



## Figure 9A

Figure 9B



## Figure 9A

Figure 9B

The state of the state state state of the st 

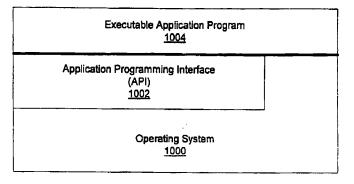


Figure 10A

Executable /	Application Program 1016			
Extended API 1014	API <u>1012</u>			
Operating System  1010				

Figure 10B



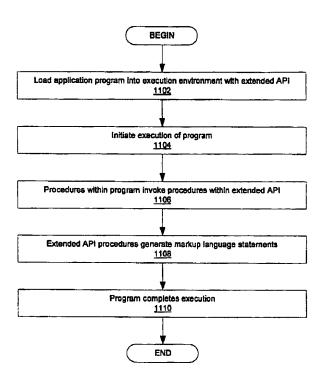


Figure 11

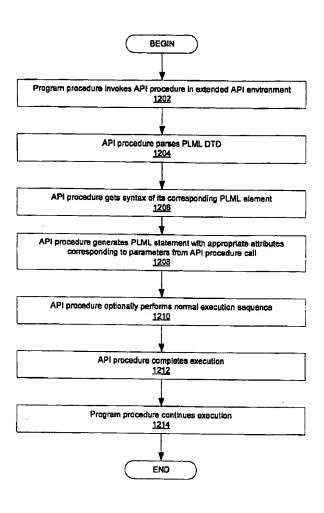


Figure 12

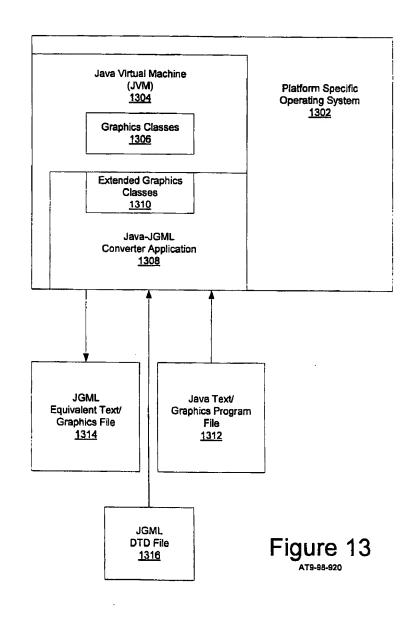


Figure 14

```
<!-- Java Graphics Markup Language (JGML) Document Type Definition (DTD) -->
<!ENTITY % base_content_model
     '(copyArea | drawLine | fillRect | drawRect | clearRect |
        drawRoundRect | fillRoundRect | draw3Drect | fill3Drect|
        drawOval | fillOval | drawArc | fillArc | drawPolyline
        drawPolygon | fillPolygon | drawString | drawChars|
       drawBytes | drawImage | dispose | finalize | clipRect|
setClip | setColor | setPaintMode | translate | setXORMode |
        setFont)*
<!ELEMENT jgml %base_content_model;>
<!ELEMENT copyArea
<!ATTLIST
       copyArea
                                              CDATA
                                                             #REQUIRED
                              x
                                              CDATA
                                                             #REQUIRED
                              width
                                              CDATA
                                                             #REQUIRED
                                              CDATA
                                                             #REQUIRED #REQUIRED
                              height
                              фx
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                              đу
                                              CDATA
                                                             #REQUIRED
<!ELEMENT drawLine
                              EMPTY>
<!ATTLIST
                                              CDATA
                                                             #REQUIRED
       drawLine
                              x1
                              yl
x2
                                              CDATA
                                                             #REQUIRED
                                                             #REQUIRED
                                              CDATA
                              y2
                                              CDATA
                                                             #REQUIRED
<!ELEMENT fillRect
                              EMPTY>
<!ATTLIST
       fillRect
                              x
                                              CDATA
                                                             #REQUIRED
                                              CDATA
                                                             #REQUIRED
                              y
                              width
                                                             #REQUIRED
                                              CDATA
                              height
                                              CDATA
                                                             #REQUIRED
<!ELEMENT drawRect
                              EMPTY>
<!ATTLIST
        drawRect
                                              CDATA
                                                             #REQUIRDD
                                              CDATA
                                                             #REQUIRED
                              y
                               width
                                              CDATA
                                                             #REQUIRED
                              height
                                              CDATA
                                                             #REQUIRED
<!ELEMENT clearRect
                               EMPTY>
<!ATTLIST
       clearRect
                                              CDATA
                                                             #REQUIRED
                                              CDATA
                                                             #REQUIRED
                               y
                               width
                                              CDATA
                                                             #REQUIRED
                               height
                                              CDATA
                                                             #REQUIRED
```

Figure 15A

AT9-98-920

ELEMENT drawRoundRect</td <td>EMPTY&gt;</td> <td></td> <td></td>	EMPTY>		
ATTLIST</td <td></td> <td></td> <td></td>			
drawRoundRect	x	CDATA	#REQUIRED
	у	CDATA	#REQUIRED
	width	CDATA	#REQUIRED
	height	CDATA	#REQUIRED
	arcWidth	CDATA	#REQUIRED
	arcHeight	CDATA	#REQUIRED
>		CDATA	wardower.
ELEMENT fillRoundRect</td <td>EMPTY&gt;</td> <td></td> <td></td>	EMPTY>		
ATTLIST</td <td>LIVIL 1 L&gt;</td> <td></td> <td></td>	LIVIL 1 L>		
fillRoundRect	x	CDATA	#DECLUBED
mikounaxeet			#REQUIRED
	y	CDATA	#REQUIRED
	width	CDATA	#REQUIRED
	height	CDATA	#REQUIRED
	arcWidth	CDATA	#REQUIRED
	arcHeight	CDATA	#REQUIRED
>			
ELEMENT draw3DRect</td <td>EMPTY&gt;</td> <td></td> <td></td>	EMPTY>		
ATTLIST</td <td></td> <td></td> <td></td>			
draw3DRect	x	CDATA	#REQUIRED
	у	CDATA	#REQUIRED
	width	CDATA	#REQUIRED
	height	CDATA	#REQUIRED
	raised	CDATA	#REOUTRED
>			***************************************
ELEMENT fill3DRect</td <td>EMPTY&gt;</td> <td></td> <td></td>	EMPTY>		
ATTLIST</td <td></td> <td></td> <td></td>			
fill3DRect	x	CDATA	#REQUIRED
	y	CDATA	#REQUIRED
	y width		
		CDATA	#REQUIRED
	height	CDATA	#REQUIRED
>	raised	CDATA	#REQUIRED
	El mark		
ELEMENT drawOval</td <td>EMPTY&gt;</td> <td></td> <td></td>	EMPTY>		
ATTLIST</td <td></td> <td></td> <td></td>			
drawOval	x	CDATA	#REQUIRED
	У	CDATA	#REQUIRED
	width	CDATA	#REQUIRED
	height	CDATA	#REQUIRED
>			-
ELEMENT fillOval</td <td>EMPTY&gt;</td> <td></td> <td></td>	EMPTY>		
ATTLIST</td <td></td> <td></td> <td></td>			
fillOval	x	CDATA	#REQUIRED
	y y	CDATA	#REQUIRED
	width	CDATA	#REQUIRED
	height	CDATA	#REQUIRED
>			

Figure 15B

ELEMENT drawArc <!ATTLIST</th <th>EMPTY&gt;</th> <th></th> <th></th>	EMPTY>		
drawArc	x y width height startAngle arcAngle	CDATA CDATA CDATA CDATA CDATA CDATA	#REQUIRED #REQUIRED #REQUIRED #REQUIRED #REQUIRED #REQUIRED
> ELEMENT fillArc</td <td>EMPTY&gt;</td> <td></td> <td>-</td>	EMPTY>		-
< ATTLIST fillArc	x y width height startAngle arcAngle	CDATA CDATA CDATA CDATA CDATA CDATA CDATA	#REQUIRED #REQUIRED #REQUIRED #REQUIRED #REQUIRED #REQUIRED
ELEMENT drawPolyLine <!ATTLIST</td <td>EMPTY&gt;</td> <td></td> <td></td>	EMPTY>		
drawPolyLine	xPoints yPoints nPoints	CDATA CDATA CDATA	#REQUIRED #REQUIRED #REQUIRED
> ELEMENT drawPolygon <!ATTLIST</td <td>EMPTY&gt;</td> <td></td> <td></td>	EMPTY>		
drawPolygon	xPoints yPoints nPoints P	CDATA CDATA CDATA CDATA	#IMPLIED #IMPLIED #IMPLIED #IMPLIED
ELEMENT fillPolygon <!ATTLIST</td <td>EMPTY&gt;</td> <td></td> <td>•</td>	EMPTY>		•
fillPolygon	xPoints yPoints nPoints Polygon	CDATA CDATA CDATA CDATA	#IMPLIED #IMPLIED #IMPLIED #IMPLIED
> ELEMENT drawString <!ATTLIST</td <td>EMPTY&gt;</td> <td></td> <td></td>	EMPTY>		
drawString	str x y	CDATA CDATA CDATA	#REQUIRED #REQUIRED #REQUIRED

Figure 15C

ELEMENT drawChars</td <td>EMPTY&gt;</td> <td></td> <td></td>	EMPTY>		
ATTLIST</td <td></td> <td></td> <td></td>			
drawChars	data	CDATA	#REOUTRED
	offset	CDATA	#REQUIRED
	length	CDATA	#REOUIRED
	x	CDATA	#REQUIRED
	y	CDATA	#REQUIRED
>			•
ELEMENT drawBytes <!ATTLIST</td <td>EMPTY&gt;</td> <td></td> <td></td>	EMPTY>		
drawBytes	offset	CDATA	#REQUIRED
	length	CDATA	#REQUIRED
	x	CDATA	#REQUIRED
	у	CDATA	#REQUIRED
>	<b></b>		
ELEMENT drawImage<br ATTLIST</td <td>EMPTY&gt;</td> <td></td> <td></td>	EMPTY>		
draw <b>lma</b> ge	img	CDATA	#REQUIRED
	x	CDATA	#IMPLIED
	у	CDATA	#IMPLIED
	width	CDATA	#IMPLIED
	height	CDATA	#IMPLIED
	dx1	CDATA	#IMPLIED
	dy1	CDATA	#IMPLIED
	dx2	CDATA	#IMPLIED
	dy2	CDATA	#IMPLIED
	sxl	CDATA	#IMPLIED
	syl	CDATA	#IMPLIED
	5x2	CDATA	#IMPLIED
	sy2	CDATA	#IMPLIED
	bgcolor	CDATA	#IMPLIED
>	observer	CDATA	#REQUIRED
ELEMENT dispose</td <td>EMPTY&gt;</td> <td></td> <td></td>	EMPTY>		
ELEMENT finalize</td <td>EMPTY&gt;</td> <td></td> <td></td>	EMPTY>		
ELEMENT clipRect</td <td>EMPTY&gt;</td> <td></td> <td></td>	EMPTY>		
ATTLIST</td <td>MI 11-</td> <td></td> <td></td>	MI 11-		
clipRect	x	CDATA	#REQUIRED
	y y	CDATA	#REQUIRED
	width	CDATA	#REQUIRED
	height	CDATA	#REQUIRED
>	0		"TOO CHAID

Figure 15D

ELEMENT setClip <!ATTLIST</th <th>EMPTY&gt;</th> <th></th> <th></th>	EMPTY>		
setClip	x	CDATA	#IMPLIED
	y y	CDATA	#IMPLIED
	width	CDATA	#IMPLIED
	height	CDATA	#IMPLIED
	clip	CDATA	#IMPLIED
>	cub	CDAIA	HIVIT LIED
ELEMENT setColor</td <td>EMPTY&gt;</td> <td></td> <td></td>	EMPTY>		
ATTLIST</td <td>EMP11&gt;</td> <td></td> <td></td>	EMP11>		
setColor		CD ATEA	#DEOLUDED
	color	CDATA	#REQUIRED
ELEMENT setPaintmode</td <td>EMPTY&gt;</td> <td></td> <td></td>	EMPTY>		
ELEMENT translate</td <td>EMPTY&gt;</td> <td></td> <td></td>	EMPTY>		
ATTLIST</td <td></td> <td></td> <td></td>			
translate	x	CDATA	#REQUIRED
	у	CDATA	#REQUIRED
>			
ELEMENT setXORMode</td <td>EMPTY&gt;</td> <td></td> <td></td>	EMPTY>		
ATTLIST</td <td></td> <td></td> <td></td>			
setXORMode	cl	CDATA	#REQUIRED
>			
ELEMENT setFont</td <td>EMPTY&gt;</td> <td></td> <td></td>	EMPTY>		
ATTLIST</td <td></td> <td></td> <td></td>			
setFont	font	CDATA	#REQUIRED
>			
End of DTD for Java Graphics Markup Language			

Figure 15E

clearRect (int, int, int, int)

Clears the specified rectangle by filling it with the background color of the current drawing surface.

● clipRect (int, int, int, int)

Intersects the current clip with the specified rectangle.

copyArea (Int, int, int, int, int, int)

Copies an area of the component by a distance specified by dx and dy.

create ()

Creates a new Graphics object that is a copy of this Graphics object.

create (int, int, int int)

Creates a new Graphics object based on this Graphics object, but with a new translation and clip area.

dispose ()

Disposes of this graphics context and releases any system resources that it is using.

draw3Drect (int, int, Int, int, boolean)

Draws a 3-D highlighted outline of the specified rectangle.

drawArc (int, int, int, int, int, int)

Draws the outline of a circular or elliptical arc covering the specified rectangle.

drawBytes (byte[], int, Int, int, int)

Draws the text given by the specified byte array, using this graphics context's current font and color.

drawChars (char[], int, int, Int, int)

Draws the text given by the specified character array, using this graphics context's current font and color.

drawimage (Image, Int,int, Color, ImageObserver)

Draws as much of the specified image as is currently available.

drawimage (Image, int, int, int, Color, ImageObserver)

Draws as much of the specified image as has already been scaled to fit inside the specified rectangle.

drawlmage (Image, int, int, int, int, ImageObserver)

Draws as much of the specified image as has already been scaled to fit inside the specified rectangle.

Draws as much of the specified area of the specified image as is currently available, scaling it on the fly to fit inside the specified area of the destination drawable surface.

drawlmage (Image, Int, int, int, int, int, int, int, ImageObserver)

Draws as much of the specified area of the specified image as is currently available, scaling it on the fly to fit inside the specified area of the destination drawable surface.

drawLine (int, int, int, int)

Draws a line, using the current color, between the points (x1, y1) and (x2, y2) in this graphics context" coordinate system.

● drawOval (int, int, int, int)

Draws the outline of an oval.

drawPolygon (int[], int[], int)

Draws a closed polygon defined by arrays of x and y coordinates.

drawPolygon (Polygon)

Draws the outline of a polygon defined by the specified Polygon object.

drawPolyline (int[], int[], int)

Draws a sequence of connected lines defined by arrays of x and y coordinates.

drawRect (int, int, int, int)

Draws the outline of the specified rectangle.

drawRoundRect (int, int, int, int, int, int)

Draws an outlined round-comered rectangle using this graphics context's current color.

Figure 16A

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 drawString (String, int, int) Draws the text given by the specified string, using this graphics context's current font and • fill3Drect (int, int, Int, int, boolean) Paints a 3-D highlighted rectangle filled with the current color. • fillArc (int, int, int, int, int) Fills a circular or elliptical arc covering the specified rectangle. • fillOval (int, int, int, int) Fills an oval bounded by the specified rectangle with the current color. fillPolygon (int[], int[], int) Fills a closed polygon defined by arrays of x and y coordinates. • fillPolygon (Polygon) Fills the polygon defined by the specified Polygon object with the graphics context's current color. • fillRect (int, int, int, int)

Fills the specified rectangle. • fillRoundRect (int, int, int, int, int, int) Fills the specified rounded comer rectangle with the current color. • finalize () Disposes of this graphics context once it is no longer referenced. oetClip () Gets the current clipping area. getClipBounds ( ) Returns the bounding rectangle of the current clipping area. getClipRect ( ) Deprecated. getColor () Gets this graphics context's current color. getFont() Gets the current font. getFontMetrics () Gets the font metrics of the current font. getFontMetrics (Font) Gets the font metrics for the specified font. setClip (int, int, int, int) Sets the current clip to the rectangle specified by the given coordinates. ■ <u>setClin</u> (Shape) Sets the current clipping area to an arbitrary clip shape. setColor (Color) Sets this graphics context's current setFont (Font) Sets this graphics context's font to the specified font. ● setPaintMode ()

Figure 16B

Returns a String object representing this Graphics object's value.

Sets the paint mode of this graphics context to overwrite the destination with this graphics

Sets the paint mode of this graphics context to alternate between this graphics context's

Translates the origin of the graphics context to the point (x, y) in the current coordinate system.

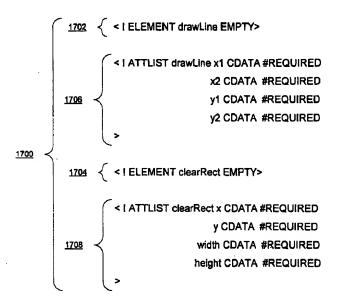
context's current color.

current color and the new specified color.

setXORMode (Color)

toString ()

■ translate (int, int)



## Figure 17

```
1802 -- drawLine (23, 43, 50, 60);

1804 - drawLine (50, 60, 27, 80);

1806 - clearRect (0, 0, 10, 10);
```

Figure 18

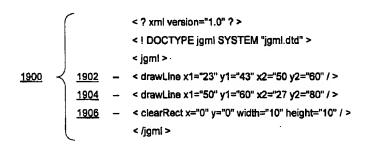


Figure 19